

## WEST Search History

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DATE: Wednesday, August 08, 2007

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	<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ</i>		
<input type="checkbox"/>	L11	L10 and exhausting	16
<input type="checkbox"/>	L10	L9 and gas	51
<input type="checkbox"/>	L9	L8 and l2	55
<input type="checkbox"/>	L8	(134/22.1 or 134/166r or 134/105 or 134/19).ccls.	4243
<input type="checkbox"/>	L7	L6 with cooling	1
<input type="checkbox"/>	L6	L5 with gas	2
<input type="checkbox"/>	L5	L4 with (inner or inside)	4
<input type="checkbox"/>	L4	L2 with (elevat\$ or rais\$) with temperature	7
<input type="checkbox"/>	L3	L2 with (elevate or rais\$) with temperature	3
<input type="checkbox"/>	L2	cleaning with l1	2715
<input type="checkbox"/>	L1	processing apparatus	166340

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Search Results - Record(s) 11 through 16 of 16 returned.

☐ 11. Document ID: US 20020007844 A1

L11: Entry 11 of 16

File: PGPB

Jan 24, 2002

PGPUB-DOCUMENT-NUMBER: 20020007844

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020007844 A1

TITLE: Cleaning processing method and cleaning processing apparatus

PUBLICATION-DATE: January 24, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Orii, Takehiko	Nirasaki-shi		JP
Nakamori, Mitsunori	Nirasaki-shi		JP

US-CL-CURRENT: 134/30; 134/105, 134/33, 134/902, 134/95.2, 134/95.3, 134/98.1,  
134/99.1

ABSTRACT:

Where a substrate such as a semiconductor wafer held in a process space in a process chamber consisting of an outside chamber and an inside chamber is subjected to a cleaning processing, a chemical agent such as IPA or a solvent having a surfactant added thereto is supplied in the form of a mist or a vapor toward the substrate under the state that the substrate is stopped or rotated at a low speed after processing with a chemical agent and a subsequent rinsing processing with a pure water. After the supply of the chemical agent is stopped, the substrate is rotated at a rotating speed higher than said low speed so as to centrifugally remove the chemical agent attached to the substrate.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw De
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☐ 12. Document ID: US 6899767 B2

L11: Entry 12 of 16

File: USPT

May 31, 2005

US-PAT-NO: 6899767

DOCUMENT-IDENTIFIER: US 6899767 B2

TITLE: Method of cleaning processing chamber of semiconductor processing apparatus

DATE-ISSUED: May 31, 2005

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sakuma; Takeshi	Tokyo			JP

US-CL-CURRENT: 134/26; 134/2, 134/21, 134/22.1, 134/22.17, 134/22.18, 134/25.4,  
134/28, 134/29, 134/3, 134/31, 134/34, 134/35, 134/36, 134/37, 134/41, 134/42

## ABSTRACT:

A method of cleaning the interior of a processing chamber first performs a halogenation treatment by supplying a treatment gas containing a halogenating gas into the processing chamber and heating a support member for a target substrate, thereby halogenating a metal element in a by-product film. A reduction treatment is then performed by supplying a treatment gas containing a reducing gas into the processing chamber, thereby reducing a halide of the metal element and liberating the metal element. An oxidation treatment is then performed by supplying a treatment gas containing an oxidizing gas into the processing chamber and heating the casing walls of the processing chamber, thereby passivating the liberated metal element by oxidation.

20 Claims, 3 Drawing figures

Exemplary Claim Number: 13

Number of Drawing Sheets: 2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KMIC	Draw. De
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☐ 13. Document ID: US 6660101 B1

L11: Entry 13 of 16

File: USPT

Dec 9, 2003

US-PAT-NO: 6660101

DOCUMENT-IDENTIFIER: US 6660101 B1

TITLE: Method and apparatus for cleaning film deposition device

DATE-ISSUED: December 9, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Tachibana; Mitsuhiro	Yamanashi-Ken			JP

US-CL-CURRENT: 134/18; 134/21, 134/22.1, 134/22.18, 134/902, 216/59, 216/61, 216/79

## ABSTRACT:

This cleaning method and cleaning apparatus for a film deposition apparatus includes a processing container 4 accommodating a mounting table 10 for mounting an object W to be processed, a gas-introduction unit 52 for introducing a designated gas into the processing container, a vacuum exhausting system 36 for exhausting an atmosphere in the processing container in vacuum, and an automatic pressure regulating valve 42 interposed in the vacuum exhausting system so that a pressure

in the processing container can be maintained at a constant value by changing an opening degree of the automatic pressure regulating valve. The cleaning method and cleaning apparatus further includes a cleaning-gas supplying unit 62 for supplying the gas-introduction unit with a cleaning gas, a valve-opening monitoring unit 64 for monitoring an opening degree of the automatic pressure regulating valve, a change detecting unit 66 for detecting a change in the opening degree on a basis of an output from the valve-opening monitoring unit 64 and a cleaning-end recognizing unit 68 for recognizing an end point of cleaning on a basis of an output from the change detecting unit 66. Consequently, the cleaning method and cleaning apparatus can detect the end point of an appropriate etching with ease.

9 Claims, 3 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 3

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstract	Claims	KWIC	Draw. Da
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☐ 14. Document ID: US 6299696 B1

L11: Entry 14 of 16

File: USPT

Oct 9, 2001

US-PAT-NO: 6299696

DOCUMENT-IDENTIFIER: US 6299696 B1

TITLE: Substrate processing apparatus and substrate processing method

DATE-ISSUED: October 9, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kamikawa; Yuji	Tosu			JP
Kitahara; Shigenori	Tosu			JP
Ueno; Kinya	Nirasaki			JP

US-CL-CURRENT: 134/2; 134/19, 134/26, 134/28, 134/29, 134/3, 134/30, 134/31,  
134/32, 134/34, 134/35, 134/36, 134/41, 134/61, 134/902, 134/95.2, 134/95.3

ABSTRACT:

A substrate processing apparatus (1) for processing wafers (W) has a first processing chamber (2) capable of containing the wafers (W) and a second processing chamber (4) capable of containing the wafers (W). The second processing chamber (4) is formed below and near the first processing chamber (2) and is capable of communicating with the first processing chamber (2). A wafer guide (6) carries the wafers (W) vertically between the first and second processing chambers (2, 4). A shutter (7) is opened to allow the first and second processing chambers (2, 4) to communicate with each other and is closed to isolate the same from each other. A steam supply system (8) including steam supply port, an ozone gas supply system (9) including ozone gas supply port and an IPA supply system (10) including IPA supply port are combined with the first processing chamber (2). A pure water supply system (11) including pure water supply port and a draining unit (12) including a drain pipe-line (141) through which pure water is drained are combined with the second processing chamber (4).

5 Claims, 11 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KMC	Draw. De
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☐ 15. Document ID: US 5637153 A

L11: Entry 15 of 16

File: USPT

Jun 10, 1997

US-PAT-NO: 5637153  
DOCUMENT-IDENTIFIER: US 5637153 A

TITLE: Method of cleaning reaction tube and exhaustion piping system in heat processing apparatus

DATE-ISSUED: June 10, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Niino; Reiichi	Wappingers Falls	NY		
Fujita; Yoshiyuki	Kofu			JP
Lee; Hideki	Nirasaki			JP
Imamura; Yasuo	Yokohama			JP
Nishimura; Toshiharu	Kofu			JP
Mikata; Yuuichi	Kawasaki			JP
Miyazaki; Shinji	Yokkaichi			JP
Moriya; Takahiko	Yokohama			JP
Okumura; Katsuya	Poughkeepsie	NY		
Kato; Hitoshi	Kofu			JP

US-CL-CURRENT: 134/22.11; 134/2, 134/22.1, 134/22.12, 134/22.18, 134/3, 134/37, 134/42

ABSTRACT:

After a polysilicon film is formed on a wafer, a cleaning gas containing ClF.sub.3 at 10 to 50 vol % is supplied into a reaction tube and an exhaust pipe system at a flow rate of 3000 to 3500 SCCM, so as to remove a polysilicon-based film deposited on an inner wall surface of the reaction tube, the surface of a member incorporated in the reaction tube, and an inner wall surface of the exhaust pipe system while the film forming process, by etching using ClF.sub.3. The cleaning gas is supplied while the temperature in the reaction tube is maintained at 450.degree. C. or higher, and in a pressure condition set at the maintained temperature such that an etching rate of the polysilicon-based film by the cleaning gas is higher than an etching rate of silicon which is the material of the reaction tube or the member incorporated in the reaction tube.

16 Claims, 22 Drawing figures  
Exemplary Claim Number: 1  
Number of Drawing Sheets: 15

Full	Title	Citation	Front	Review	Classification	Date	Reference	Search	Search	Claims	KMIC	Draw. De
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☐ 16. Document ID: US 5294262 A

L11: Entry 16 of 16

File: USPT

Mar 15, 1994

US-PAT-NO: 5294262

DOCUMENT-IDENTIFIER: US 5294262 A

TITLE: Method of cleaning a process tube with ClF.sub.3 gas and controlling the temperature of process

DATE-ISSUED: March 15, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nishimura; Toshiharu	Kofu			JP

US-CL-CURRENT: 134/22.1; 134/31, 134/37, 134/42, 216/48, 216/58, 216/67

ABSTRACT:

A method of cleaning a process tube and a wafer boat, comprising the steps of, carrying wafers out of the process tube, controlling the temperature in the process tube saw as or lower than a process temperature and higher than a boiling point of ClF.sub.3, said process temperature being kept in the process tube when the process of forming film on the wafers is carried out in the process tube, and supplying ClF.sub.3 -contained cleaning gas into the process tube to react the cleaning gas with the film of the silicon oxide adhering to the inner wall of the process tube and the wafer boat.

19 Claims, 7 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 6

Full	Title	Citation	Front	Review	Classification	Date	Reference	Search	Search	Claims	KMIC	Draw. De
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Term	Documents
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EXHAUSTINGS	1
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(L10 AND EXHAUSTING ) . PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD.	16

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☐ 1. Document ID: US 20070163617 A1

L11: Entry 1 of 16

File: PGPB

Jul 19, 2007

PGPUB-DOCUMENT-NUMBER: 20070163617  
PGPUB-FILING-TYPE:  
DOCUMENT-IDENTIFIER: US 20070163617 A1

TITLE: Method for cleaning treatment chamber in substrate treating apparatus and method for detecting endpoint of cleaning

PUBLICATION-DATE: July 19, 2007

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Ozaki; Shigenori	Hyogo		JP
Noguchi; Hideyuki	Yamanashi		JP
Kabe; Yoshiro	Hyogo		JP
Isa; Kazuhiro	Hyogo		JP
Sasaki; Masaru	Hyogo		JP

US-CL-CURRENT: [134/1.1](#); [118/723R](#), [134/22.1](#), [156/345.28](#), [700/121](#)

ABSTRACT:

In a substrate processing apparatus for performing a plasma process on a substrate including a tungsten-containing film, cleaning is performed for a process chamber. This cleaning includes, after the plasma process, supplying a gas containing O.sub.2 into the process chamber without setting the process chamber opened to the atmosphere, and generating plasma of the gas to clean the process chamber.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Drawings
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☐ 2. Document ID: US 20060196527 A1

L11: Entry 2 of 16

File: PGPB

Sep 7, 2006

PGPUB-DOCUMENT-NUMBER: 20060196527  
PGPUB-FILING-TYPE:  
DOCUMENT-IDENTIFIER: US 20060196527 A1

TITLE: Method of surface processing substrate, method of cleaning substrate, and



programs for implementing the methods

PUBLICATION-DATE: September 7, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Nishimura; Eiichi	Nirasaki-shi		JP
Orii; Takehiko	Nirasaki-shi		JP

US-CL-CURRENT: 134/2; 134/19, 134/26, 134/28, 134/34, 216/41, 216/57, 216/67, 216/83

ABSTRACT:

A method of surface processing a substrate that enables deposit to be removed from a substrate so as to obtain a clean substrate. A substrate is cleaned with a liquid chemical. A deposit which is formed through the cleaning with liquid chemical is exposed to an atmosphere of a mixed gas containing ammonia and hydrogen fluoride under a predetermined pressure. The deposit that has been exposed to the atmosphere of the mixed gas is heated to a predetermined temperature.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KIMC	Draw De
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☐ 3. Document ID: US 20060175011 A1

L11: Entry 3 of 16

File: PGPB

Aug 10, 2006

PGPUB-DOCUMENT-NUMBER: 20060175011

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060175011 A1

TITLE: Method of cleaning substrate-processing device and substrate-processing device

PUBLICATION-DATE: August 10, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Shinriki; Hiroshi	Yamanashi		JP
Dobashi; Kazuya	Yamanashi		JP
Suzuki; Mikio	Yamanashi		JP
Magara; Takashi	Yamanashi		JP

US-CL-CURRENT: 156/345.29; 134/10, 134/105, 134/166R, 134/22.1, 156/345.37, 216/58

ABSTRACT:

In a cleaning step of a substrate-processing device, vacuum drawing is made for the space between an inner chamber and an outer chamber that receives the inner chamber. Temperature of the inner chamber is set higher than the temperature of the inner chamber during substrate processing and set lower than the temperature of a

substrate support member. After that, a cleaning gas containing hexafluoroacetylaceton (Hhfac) is supplied in the inner chamber, and substances to be cleaned off adhering inside the inner chamber are removed.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 4. Document ID: US 20060162742 A1

L11: Entry 4 of 16

File: PGPB

Jul 27, 2006

PGPUB-DOCUMENT-NUMBER: 20060162742

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060162742 A1

TITLE: Cleaning method of processing apparatus, program for performing the method, and storage medium for storing the program

PUBLICATION-DATE: July 27, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Moriya; Tsuyoshi	Yamanashi		JP
Nakayama; Hiroyuki	Yamanashi		JP
Nagaike; Hiroshi	Yamanashi		JP

US-CL-CURRENT: 134/1.1; 134/22.1

ABSTRACT:

A plasma processing apparatus includes a processing chamber, in which a wafer W is plasma-processed, and a CPU controlling an operation of each component. A processing gas is introduced into the processing chamber under a first condition defined by a flow rate and a molecular weight of the processing gas, specifically based on a magnitude of a product A.sub.1 (=Q.sub.1.times.m.sub.1) of the flow rate Q.sub.1 and the molecular weight m.sub.1 of the processing gas, and a surface of the wafer W is physically or chemically etched. And then, a pre-purge gas which may be identical to or different from the processing gas is introduced into the processing chamber through a shower head under a second condition derived from the first condition.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw. De
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☐ 5. Document ID: US 20060011213 A1

L11: Entry 5 of 16

File: PGPB

Jan 19, 2006

PGPUB-DOCUMENT-NUMBER: 20060011213

PGPUB-FILING-TYPE:

DOCUMENT-IDENTIFIER: US 20060011213 A1

TITLE: Substrate transfer device and cleaning method thereof and substrate processing system and cleaning method thereof

PUBLICATION-DATE: January 19, 2006

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Moriya; Tsuyoshi	Nirasaki-shi		JP
Nakayama; Hiroyuki	Nirasaki-shi		JP

US-CL-CURRENT: 134/1.1; 118/715, 134/22.1

ABSTRACT:

A substrate transfer device includes an accommodating chamber for accommodating a substrate; a substrate transfer unit installed in the accommodating chamber for transferring the substrate; a gas exhaust unit for exhausting the accommodating chamber; and a gas introducing unit for introducing a gas into the accommodating chamber. The substrate transfer unit has a mounting subunit for mounting the substrate thereon, an arm subunit one end of which is connected to the mounting subunit to move the mounting subunit, and an electrode installed in the mounting subunit to which a voltage is applied, and a high voltage is applied to the electrode while the gas is being introduced into the accommodating chamber and the accommodating chamber is being exhausted.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RWNC	Draw. De
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☐ 6. Document ID: US 20050139234 A1

L11: Entry 6 of 16

File: PGPB

Jun 30, 2005

PGPUB-DOCUMENT-NUMBER: 20050139234

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050139234 A1

TITLE: Method of cleaning substrate processing apparatus and computer-readable recording medium

PUBLICATION-DATE: June 30, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Dobashi, Kazuya	Nirasaki-shi		JP
Oshima, Yasuhiro	Nirasaki-shi		JP

US-CL-CURRENT: 134/19; 134/22.1

ABSTRACT:

A process chamber having an insulative substance adhering thereto is heated to not lower than 300.degree. C. nor higher than 450.degree. C. and a cleaning gas containing .beta. diketone and one of water and alcohol is supplied into the

process chamber. When the cleaning gas supplied into the process chamber adheres to an inner wall of the process chamber and a susceptor to be in contact with the insulative substance, a complex of a substance composing the insulative substance is formed. The complex easily vaporizes owing to a high vapor pressure, to be discharged out of the process chamber by the exhaust of the inside of the process chamber.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RWIC	Draw. De
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☐ 7. Document ID: US 20040231707 A1

L11: Entry 7 of 16

File: PGPB

Nov 25, 2004

PGPUB-DOCUMENT-NUMBER: 20040231707

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040231707 A1

TITLE: Decontamination of supercritical wafer processing equipment

PUBLICATION-DATE: November 25, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Schilling, Paul	Granite Bay	CA	US
Hillman, Joseph	Scottsdale	AZ	US

US-CL-CURRENT: 134/34; 134/108, 134/19, 134/22.1, 134/26

ABSTRACT:

A method is disclosed for decontaminating a supercritical processing apparatus and/or wafers after a wafer cleaning step. In accordance the embodiments of the invention, a supercritical cleaning step utilizes a surfactant to clean a wafer and uses a supercritical rinse solution in a post-cleaning step to decontaminate the supercritical processing apparatus, the wafer or both from processing residues. In accordance with further embodiments of the invention, supercritical rinse solutions are used to cure processing surfaces of the supercritical processing apparatus after the supercritical processing apparatus is serviced or when replacement parts are installed.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RWIC	Draw. De
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☐ 8. Document ID: US 20040163683 A1

L11: Entry 8 of 16

File: PGPB

Aug 26, 2004

PGPUB-DOCUMENT-NUMBER: 20040163683

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040163683 A1

TITLE: Substrate processing apparatus for drying substrate

PUBLICATION-DATE: August 26, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Sugimoto, Hiroaki	Kyoto		JP
Okuda, Seiichiro	Kyoto		JP
Hashizume, Akio	Kyoto		JP

US-CL-CURRENT: 134/56R; 134/105, 134/113, 134/148, 134/157, 134/902, 134/94.1

## ABSTRACT:

A substrate processing apparatus includes a container in which a heating plate, a discharge nozzle for discharging a vapor of organic solvent, and a discharge nozzle for supplying a process gas and a cooling gas are provided. A pump in communication with an exhaust outlet of the container exhausts an atmosphere from the container to reduce pressure in the container. Therefore, the substrate processing apparatus is capable of performing (1) the process of drying a substrate in a reduced-pressure atmosphere by the use of the vapor of organic solvent, and (2) the process of drying the substrate in the reduced-pressure atmosphere by heating, to thereby efficiently dry the substrate.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Drawings
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☐ 9. Document ID: US20030140945 A1

L11: Entry 9 of 16

File: PGPB

Jul 31, 2003

PGPUB-DOCUMENT-NUMBER: 20030140945

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030140945 A1

TITLE: Substrate processing apparatus

PUBLICATION-DATE: July 31, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Chono, Yasuhiro	Tosu-shi		JP

US-CL-CURRENT: 134/11; 134/166R, 134/22.1, 134/30, 134/31, 134/95.2, 257/E21.285

## ABSTRACT:

A substrate processing apparatus and a substrate processing method are provided wherein particles etc. adhering to a substrate after processing can be reduced.

According to a substrate processing apparatus 23a in which processing is performed to a substrate placed inside a chamber 45 by supplying ozone gas and steam to the substrate, said chamber 45 is cleaned by supplying ozone water into said chamber 45. Moreover, according to a substrate processing method for processing a substrate W by supplying ozone gas to the substrate W, a substrate W is placed inside the

chamber 45, and the substrate W is processed by supplying ozone gas and steam to said substrate W, and then the substrate W is unloaded from said chamber 45, and after that, said chamber 45 is cleaned by supplying ozone water into said chamber 45.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RWMC	Draw. De
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☐ 10. Document ID: US 20020117472 A1

L11: Entry 10 of 16

File: PGPB

Aug 29, 2002

PGPUB-DOCUMENT-NUMBER: 20020117472

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020117472 A1

TITLE: Cleaning of multicompositional etchant residues

PUBLICATION-DATE: August 29, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Sun, Zhi-Wen	San Jose	CA	US
Jiang, Anbei	Sunnyvale	CA	US
Huang, Tuo-Chuan	Cupertino	CA	US

US-CL-CURRENT: 216/68; 134/1.1, 134/21, 134/22.1, 156/345.48, 216/60, 216/75, 216/79, 257/E21.226

ABSTRACT:

A substrate processing apparatus has a chamber with a substrate transport to transport a substrate onto a substrate support in the chamber, a gas supply to provide a gas in the chamber, a gas energizer to energize the gas, and a gas exhaust to exhaust the gas. A controller operates one or more of the substrate support, gas supply, gas energizer, and gas exhaust, to set etching process conditions in the chamber to etch a plurality of substrates, thereby depositing etchant residues on surfaces in the chamber. The controller also operates one or more of the substrate support, gas supply, gas energizer, and gas exhaust, to set cleaning process conditions in the chamber to clean the etchant residues. The cleaning process conditions comprise a volumetric flow ratio of 0.sub.2 to CF.sub.4 of from about 1:1 to about 1:40.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RWMC	Draw. De
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Term	Documents
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EXHAUSTINGS	1
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(L10 AND EXHAUSTING ) . PGPB, USPT, USOC, EPAB, JPAB, DWPI, TDBD.	16

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